Datasheet

Achieve High Availability and Scalability with the Payara Platform Data Grid

The Payara® Platform - Production-Ready,
Cloud Native and Aggressively Compatible.

Executive Summary

Clustering in the Payara Platform ensures applications achieve high availability, reliability, and scalability. Several tools are built-in and provide clustering with little to no configuration required and offer shorter service interruptions, help you meet SLA requirements for availability, and reduce costs.

Application servers running Java EE applications can be clustered to run the same set of applications and share workload management. Clustering makes it possible to scale beyond the capabilities of a single application server. Requests are automatically routed to the running servers in the event of a failure, clustering also provides high availability for enterprise applications.

Payara Platform has several ways to create a clustered application deployment. When you deploy an application in a clustered way, it is installed in different locations. This means that the user requests to this application are not all handled by the same instance. There are several ways to manage the different instances running a version of your application:

- Use the Deployment Group option of Payara Server
- Manage the instances on an individual basis
- Manage the instances with a mix of options

High-Volume Performance

The Payara Platform offers the Data Grid, an in-memory computing architecture with response times of microseconds. This enables your application to distribute data across various nodes so that it is always available where the request is handled.

Built-in Scalability

Scalability is built-in to the Payara Platform. All Payara Server instances will join a single domain-wide data grid to share

Server Requirements

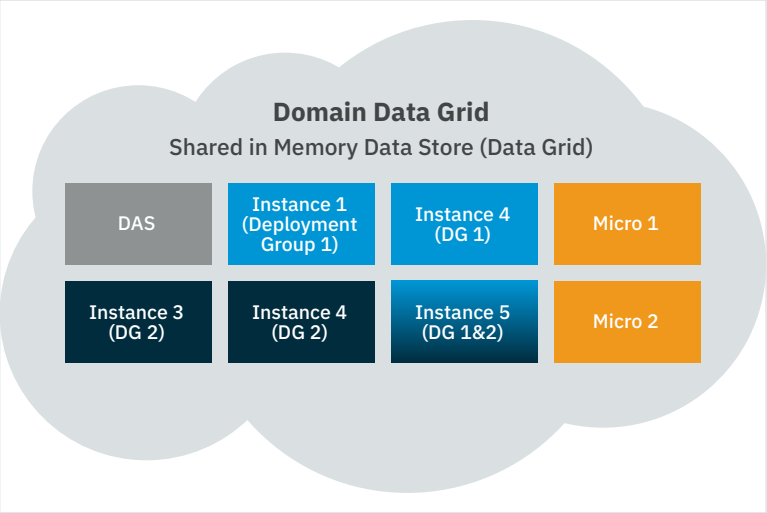
Derived from GlassFish Server Open Source Edition, Payara Server uses the same basic system requirements:

- JDK8u163 or above
- 512MB RAM

Support for Any Operating System Running One of the Following Java Virtual Machines

- Oracle JDK8 (u162+)
- Azul Zulu JDK8 (u162+)
- OpenJDK JDK8 (u162+)
- Oracle JDK 11 (11.0.4+)
- Azul Zulu JDK11 (11.0.4+)
- OpenJDK JDK11 (11.0.4+)

in-memory data, including web sessions, JCache, SSO, and Stateful EJBs. The Domain Data Grid requires little to no configuration and data stored in the grid is automatically duplicated across one or more instances to offer high availability. As more instances are added, additional JVM Heap becomes available for in-memory data storage, making it possible for the Domain Data Grid to scale and use large data sets by adding more Payara Server or Payara Micro instances without losing performance on updates or retrievals. The Domain Data Grid in Payara Server 5 is designed for cloud environments and cloud-native architectures.



Deployment Groups are a set of Payara Server and/or Payara Micro instances that can be used to target resources and deployments which can be started and stopped together. Individual Payara Server or Payara Micro instances can be in one or many deployment groups, or none at all, providing greater flexibility over traditional clustering.

When running the Payara Platform in a cloud environment, there is no requirement to use Multicast for discovery of grid members. The Domain Data Grid uses knowledge of the domain topology to find and discover other servers during boot and to join the grid. This eliminates complex configuration on cloud environments. This has been tested on major cloud IAAS platforms including Google Cloud Platform, Microsoft Azure and Amazon AWS, and in all these of environments the Domain Data Grid is formed with no configuration required.

Related Products & Services

- Payara Enterprise Production Support
- Migration & Project Support
- Payara Accelerator Consultancy
- Three Release Streams
- Payara Micro - microservice and cloud environments
- Payara Scales - high-density memory store and WAN replication

Payara Enterprise Production Support

Options include:

- 24x7 – for mission critical environments
- 10x5 – business hours support

Ensures service level agreement (SLA) operation of your application server with:

- Unlimited tickets
- Customer Knowledge Base
- On-boarding support
- 10-year support lifecycle
- Fully supported production binaries
- Fully supported ecosystem components
- Access to Zulu Enterprise-fully-supported builds of OpenJDK

Reduce Downtime for Mission-Critical Applications and Services on the Network

Mission-critical applications require 24/7 availability which is reflected in a “five nines” or better SLA (five nines = 99,999% uptime). With the built-in scalability of the Payara Platform, this kind of availability can be achieved easily for your application, and many organizations using Payara report 99% or better availability. It not only gives you credibility but reduces your overall costs.

Only Pay for What You Actually Need

Buying more infrastructure than what you need is a common, expensive mistake businesses make that wastes capital on investments which don’t generate revenue. Instead, focusing on scalability and performance ensures you’re only paying for what you need now, while giving yourself room to grow, later. Load balancing helps maximize throughput and minimize response times by distributing queries across multiple servers.

Due to the tight integration of the Payara Platform with the running environments, you can easily achieve some horizontal scaling which gives you just enough resources for the current workload. Payara Micro Instances can be scaled up and down using the Horizontal Pod Scaler based on the average CPU load to ensure the correct amount of resources for the workload.

Related Information

- Clustering in Payara Server in Docker – User Guide and Video
- Scale and Cluster Payara Micro on Kubernetes – User Guide and Video
- Domain Data Grid in Payara Server 5 - Blog

Payara Platform Resources

Try Payara Micro. Designed for containerized Java EE microservices deployments, Payara Micro is less than 70mb in size, requires no installation or configuration and no need for code rewrites – so you can build and deploy a fully working app within minutes.

Download: https://www.payara.fish/downloads

Just getting started with Payara? Watch a video tutorial, read technical overviews and resources to get the most out of the Payara Platform

Learn more: https://www.payara.fish/documentation/getting-started-with-payara/

Get involved. Join the Payara Community and help feed the fish! The Payara Platform is, and always will be, open source and we want your ideas, feedback and collaboration for ensuring Payara Server is the best option for production Java EE applications and Payara Micro is the platform of choice for containerized Java EE microservices deployments.

Learn more: https://www.payara.fish/community

About Payara Services, Ltd

Payara Services is a dedicated team of professionals devoted to open source, Java, our customers, and the community.

We're major contributors to the development and engineering effort of the Payara Server Open Source Project and the Payara Foundation. Our global Support Engineers deliver 24/7 production, development and migration support directly to customers worldwide.

As Solutions Members of the Eclipse Foundation and members of the Project Management Committee, we're helping shape the future of the industry to meet our customers' needs through our direct contributions to Jakarta EE and Eclipse MicroProfile® .

Unlike other companies creating products without support, Payara Services is committed to the continuous development and support of our open source software to ensure the highest quality solutions.

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